

The imperative of state capacity in public health crisis: Asia's early COVID-19 policy responses

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Abstract

Preexisting political institutions influence governments' responses to public health crises in different ways, creating national variations. This article investigates how state capacity, a country's fundamental ability to organize bureaucracy and allocate societal resources, affects the timing and configuration of governments' COVID-19 policy responses. Through comparative case study analysis of five of China's neighboring countries early in the COVID-19 crisis, the paper shows that more-capable states (Singapore, South Korea, Taiwan) initiated crisis response faster, mobilized national resources more extensively, and utilized diverse policy tools when the virus risk level was still low. In contrast, low-capacity states (Thailand and Indonesia) were more reactive in handling the crisis, limited their focus to border-related measures, and were more constrained in the types of tools they could employ. The paper points to the importance of studying the COVID-19 response process rather than the outcome (i.e., confirmed cases/deaths) when unpacking the impacts of political institutions in public health crises.

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1 | INTRODUCTION

Confronted with the COVID-19 pandemic, all states have implemented a wide range of policies fighting the exogenous shock. Despite the same goal, governments vary in their response timing, policy focus, and policy tools used in navigating the crisis. Government response variations were particularly obvious in Asia before the World Health Organization declared COVID-19 a pandemic on March 12, 2020. Between December 2019 and March 2020, the world was uncertain about many aspects of the emerging virus, such as its origin, transmission routes, and transmission speed. Such uncertainty prompted China's neighbors to develop distinctive responses to the crisis. For example, South Korea was proactive in mobilizing its focus on testing capacity. Indonesia took a more reactive route, adopting only a few border-related regulations. What institutional factors explain the variations in Asian governments' COVID-19 responses early on?

To answer this question, it is essential to study how preexisting political institutions enable or constrain government responses in different ways (Greer, 2021). Building on state capacity literature, this research analyzes how state capacity—minimally defined as the organizational and bureaucratic ability of the state apparatus to achieve policy goals—affects Asian governments' COVID-19 crisis responses prior to March 12, 2020. The research combines state capacity literature and policy design literature and develops a framework for understanding how state capacity influences the focus, expansion, and comprehensiveness of policy designs in response to COVID-19.

To analyze variation of government policy responses, we conducted a comparative case study analysis of China's five neighboring countries: Singapore, South Korea, Taiwan, Indonesia, and Thailand. Through official statements and documents, we collected each policy measure these states took in response to COVID-19 from December 31, 2019 (when China notified the WHO about the coronavirus) to March 12, 2020 (when COVID-19 was declared a pandemic and became a worldwide problem). All measures and regulations initiated by governments in these five countries were sorted by policy events and by time.

We argue that more-capable states initiated their crisis response faster and mobilized national resources more extensively when the virus risk level was still low. Within the chosen type of policy event (e.g., health monitoring, quarantine), high-capacity states utilize more diverse and complex policy tools (e.g., authority tools, hortatory tools, capacity-building tools) to achieve the intended policy goals. As the virus risk level increases, high-capacity states escalate their crisis response to build upon the existing setup and continue to deploy a diverse set of policy tools to fight the virus. The analytical result also shows more-capable states (Singapore, South Korea, and Taiwan) deployed diverse policy tools beyond compulsory authority tools and focused on policy event types requiring mobilization of national resources (e.g., expanding testing capacity) even before the first case was recorded in the country.

In contrast, we argue, when the virus risk level is still low, low-capacity states limit their focus on border-related measures and are more constrained with respect to the type of policy tools they can employ. Moreover, low-capacity states have limited ability in mobilizing national resources in the first place, resulting in a higher likelihood of swift policy shifts to intense and strict (mostly restrictive) measures when the risk level rises rapidly. Our analysis shows similar results that less-capable states (Indonesia and Thailand) reacted more slowly during the low-risk period and revolved mostly around border-related measures. Even though Thailand attempted to expand its testing capacity, it still fell short when the testing demand surged amid the first outbreak. Low-capacity states were more likely to experience sudden policy shifts and introduced more compulsory and authority policy tools after an outbreak.

This paper does not focus on the effectiveness of policy outcomes, which were influenced by multiple factors, such as regime type, preexisting health care system, and civil society, rather than state capacity alone.¹ Instead, the paper shows how state capacity directly influences governments' crisis response and policy design configurations. Our findings also show that governments' initial responses lock them onto self-reinforcing and path-dependent routes. To fully comprehend the politics of COVID-19 responses, it is necessary to carefully examine governments' initial responses.

The next section theorizes the relationship between state capacity and policy design and discusses testable hypotheses. The paper proceeds to explain the research design, the rationale of focusing on Asia's early responses, and the data collection process. In the empirical section, we discuss the results yielded from comparative analysis, followed by detailed case studies of the five countries. The paper concludes with the significance of state capacity in public health crisis response.

2 | STATE CAPACITY, POLICY DESIGN, AND COVID-19 RESPONSES

2.1 | Existing literature

State capacity is the ability of a central government and its bureaucratic agencies to penetrate the society and allocate societal resources to achieve certain intended goals (Besley & Persson, 2009; Geddes, 1994; Mann, 1984). As such, state capacity is a multidimensional concept, with the three most common dimensions being coercive capacity, administrative capacity, and extractive capacity (Hanson & Sigman, 2021; Skocpol, 1985; Soifer, 2012). Coercive capacity is a state's ability to force citizens' to obey using coercive forces. Administrative capacity is a state's bureaucratic ability to design and implement policies, and extractive capacity is a state's ability to obtain societal resources for its ruling. The three dimensions are distinctive conceptual lenses yet interconnected. A capable state contains an autonomous bureaucracy with qualified ability to design and implement policies and possess the ability to penetrate society (and use coercive force if needed) to extract (and reallocate) resources.

State capacity is a key institutional factor explaining a state's success in addressing wicked policy problems, such as public health crises (Christensen et al., 2016; Christensen & Lægrend, 2020; Greer et al., 2020). In response to crises, effective policy responses demand information analysis, resource mobilization, governmental and societal agencies coordination, proper policy implementation, and citizen compliance. All elements of successful crisis responses demand higher administrative, extractive, and coercive capacity of a state (Mao, 2021), and more integrated policy responses require higher institutional capacity (Domorenok et al., 2021).

As state capacity is widely accepted as central to achieving positive policy outcomes and addressing crises, existing scholarship mostly ties state capacity with policy implementation through the lens of bureaucratic autonomy and quality (Evans, 1995; Skocpol, 1985). However, policy implementation comes late in the policy process. Policy design precedes policy implementation and is "the means by which states exercise its power" (Lindvall & Teorell, 2016, p. 9). Without effective policy design, successful policy implementation alone would not bear any positive policy outcomes. Despite that, appropriate policy designs and instruments are also essential to achieving a state's intended policy outcomes, effective policy design is often assumed to be part of high state capacity.² Very few studies unpack the endogenous relation between state capacity and policy design (c.f., Lindvall & Teorell, 2016; Meckling & Nahm, 2018; Mao, 2021).

The lack of focus on the connection between state capacity and policy design is problematic. Regardless of how capable a state is, it requires sound policy designs and policy instruments to make the desired policy goals happen. Without appropriate policy designs, even the most capable state can fail in the face of a crisis. COVID-19 provides vivid examples of how high state capacity does not automatically lead to low cases/deaths.

In addition, policy design is usually neglected in state-capacity related research because the study of policy design is often left to public administration or policy studies. Despite policy design's greatly expanded breadth and complexity, research of policy designs has been far behind in the discipline of political science (Schneider & Ingram, 1990). In COVID-19-related research, it is the policy scholars calling for the linking of state capacity to policy design and configuration of COVID-19 responses (Capano et al., 2020). Although policy studies can provide valuable insights into how state capacity affects policy design effectiveness, many focus on whether the policies themselves are adequate in coping with COVID-19 (see Hartley & Jarvis, 2020; Lee et al., 2020). Policy studies scholars either (1) directly assume a country's comprehensive policy design as the result of high state capacity without defining state capacity or establishing the causal relationship between the two or (2) narrow the attention on policy capacity (factors important to policy success) instead of state capacity (Wu et al., 2015). Moreover, existing COVID-19-related policy studies are descriptive rather than explanatory. The claim that high state capacity leads to better policy design is often made in a single case study without comparing countries of different state capacity levels (Capano et al., 2020).

We argue that to fully explain how state capacity affects governments' COVID-19 responses, it is necessary to put policy design and choices back into the analysis. First, even though more-capable states are better at dealing with the coronavirus disease (Bosancianu et al., 2020; Greer et al., 2020), variation still exists in the policy event types being focused on and the policy tools used. There are some common types of policy events adopted by most governments, such as health monitoring and social distancing measures; yet there are distinctive policy event types adopted only by some countries, such as large scale contact tracing, extensive testing, or complete lockdowns. By the same token, some countries utilize multiple policy tools (e.g., a combination of authority, incentive, capacity building, hortatory, and learning tools) for the policy event types (i.e., quarantine and health monitoring) they focus on hoping to increase citizen compliance while other countries choose to use only one policy tool (i.e., authority tools) for every type of policy event (i.e., quarantine). Even if a high-capacity state should be able to design and implement more effective policies to achieve its desired policy goal, we should not assume that only specific configurations can achieve the goal. Instead, there should be a variety of policy designs and tools used for the same goal. Thus, it is worth more academic effort to determine ways in which state capacity influences policy design.

Moreover, for a wicked problem like the COVID-19 pandemic, it is necessary to disconnect policy designs and tools from policy outcomes. COVID-19 case/death rates can be influenced by various factors beyond state capacity. It is thus more difficult to infer a country's state capacity level from the usual outcome proxies. Even though high state capacity suggests a higher probability of achieving intended policy goals, desirable policy outcomes are not guaranteed. Therefore, to study the impact of state capacity on COVID-19, singling out its effect on policy configurations yields more meaningful discussions. Moreover, systematic measurement errors exist in the confirmed case/death rates. Testing capacity and coverage vary by country. Low-capacity states have relatively low testing capacity, resulting in underestimation of cases/deaths. Measurement errors cannot be prevented and would threaten the validity of the research if the confirmed case/death rate were used as the main indicator for a country's success. Therefore, instead of using an

unreliable measure as the dependent variable, policy configuration would be a better choice for capturing the effects of state capacity.

2.2 | From state capacity to policy design

2.2.1 | Measuring policy design

Scholars measure policy design comprehensiveness in various ways. For complicated policies (e.g., COVID-19 or climate changes policies) composed of policy bundles/mixes combining various policy instruments/tools, one common way to measure policy design comprehensiveness is to first divide the overall policy bundle into smaller categories based on smaller-scale policy goals, and then count the number of policy tools used under each category found in the overall policy bundle (Grafakos et al., 2018; Kalafatis, 2017). Following the same logic, we conceptualize the policy design configuration through two dimensions: policy event types and policy tools. Specifically, we first break down each country's COVID-19 bundle into smaller policy event types (smaller categories under the overall COVID-19 policy bundle) for analytical purposes. We adopted and revised the 16 policy event types used by Cheng et al. (2020). Each type of policy event (e.g., health monitoring, quarantine) is designed to address an aspect of the big COVID-19 problem. In other words, each type of policy event is proposed to achieve a policy goal. For example, quarantine as a type of policy event was designed to contain the spread of the virus. The breadth and the types of policy events adopted by a government reveal whether the government takes a targeted or scattershot approach to address the threat of COVID-19.

After breaking down government responses into types of policy events, we examined how comprehensive each type of policy event was designed. Specifically, the same policy event type might be adopted by several countries, but the content of each policy event type might vary. For example, Singapore only used top-down authority and fines (negative incentive) for regulating quarantine subjects. In contrast, Taiwan utilized not only top-down authority and fines to regulate people who were required to be quarantined but also used knowledge building and compensation (positive incentive) to reduce non-compliance. In other words, some countries may design each policy event type with a more comprehensive policy tool mix than the others.

With respect to policy tools, we use typologies developed by Schneider and Ingram (1990), who have categorized policy tools as authority, incentive, capacity, hortatory, and learning tools. Authority tools are defined as specific permissions or actions granted or required by a government using its legitimate authority. Based on this definition, mask mandates, border controls, and restricting mass gatherings are examples of authority tools. Incentive tools include inducements (positive payoffs) and sanctions (negative payoffs) toward targeted citizens. These are often used with other policy tools to encourage compliance or participation (e.g., paid vaccination leaves). Capacity tools are actions a government takes, such as providing information or training to help build targeted citizens' capacities in dealing with a problem (e.g., issuing travel advisories or raising risk level alerts). Hortatory tools, which can also be called symbolic tools, are government actions appealing specifically to individuals' values and beliefs to boost citizens' willingness to comply with public policy (e.g., presidential speeches addressing the issue). Finally, learning tools are government actions aimed at learning more about the nature of a problem and potential solutions, yet without guaranteed outcomes (e.g., virus research). The operationalization of policy tools is summarized in Table 1. Including policy tools as the second dimension of policy design allows us to measure the complexity in each type of policy events.

TABLE 1 Operationalization of policy tool typologies

Schneider and Ingram's (1990) policy tool typologies	Revised definitions	Government action examples
Authority tools	A government uses its legitimate authority to grant permission or actions	Closure of school; centralize mask distribution; border control; GPS tracking for quarantine subjects;
Incentive tools	A government uses inducements or sanction toward targeted population/entities to increase policy compliance	Fines for quarantine rule breakers; compensation for quarantine subjects; mask production rewards
Capacity tools	A government takes action to build targeted entities' capacities in coping with a policy problem	Travel warning; release anonymous footprint for contact tracing; name-based mask distribution; mask production investment
Hortatory tools	A government takes actions that appeal to targeted population/entities' value and belief to increase policy compliance.	President/Prime Minister's public address
Learning tools	A government takes actions that aim to learn more about the nature of a problem and potential solutions, yet without guaranteed outcomes	Early development of testing kits; send expert to Wuhan, China for virus investigation;

Some policy event types have intrinsic connections with certain policy tools. For example, quarantine is a policy event type that has internal association with authority tools because legal authority is necessary for issuance of quarantine requirements. However, when countries only issue quarantine requirements using legal authority without combining other tools to ensure the effectiveness of the quarantine mandate (e.g., the United States), citizen compliance can be low. In this case, the design of the policy event type (i.e., quarantine) is not comprehensive. In contrast, when countries go beyond authority tools and utilize other policy tools—including positive incentive (e.g., financial compensation), negative incentive (e.g., monetary fines for quarantine violation), capacity building (e.g., assigning quarantine hotels), and hortatory tools (e.g., using political rhetoric to praise compliance behavior)—to increase compliance rate, such policy design is more comprehensive. We provide examples of operationalizing policy event types and policy tools in Table 2.

2.2.2 | State capacity as the determinants for policy design

In order to address wicked problems like COVID-19, it is necessary to use comprehensive policy tools and to bundle them together (Howlett, 2005; Howlett et al., 2015; Peters et al., 2018). State capacity affects the extent to which a government can utilize comprehensive policy tools within each chosen policy event type. Overall, high state capacity is associated with more diverse policy tools in crisis management through high levels of extractive and administrative capacity. As mentioned, extractive capacity is a state's ability to collect resources from the society to achieve its policy goals, and administrative capacity is a state's ability to make and implement policies effectively. During crises, higher extractive capacity means that the state is more capable of

TABLE 2 Example operationalization of policy event type and policy tool typologies

Policy event types	Authority tools	Incentive tools	Capacity tools	Hortatory tools	Learning tools
Quarantine	Essential design	Government issued quarantine mandates			
	Comprehensive design	Government issued quarantine mandates	Fine for breaking quarantine (negative incentive); quarantine compensation (positive incentive)	Quarantine hotel	Rhetoric (e.g., we are all in this together)
Health resources	Essential design			Mask production investment	
	Comprehensive design	Centralize mask distribution	Mask production rewards	Mask production investment	Honoring the mask production team (e.g., Team Taiwan)

mobilizing and cooperating with the society (i.e., citizens, private sectors, and social organizations) to extract the needed resources, and higher administrative capacity means that the state is more capable of collecting information, making corresponding policy decisions, and effectively implementing the policies in the society (Mao, 2021). High extractive and administrative capacity, when mapped onto policy tools, result in the usage of a variety of policy tools, especially positive incentives tools, capacity tools and oftentimes symbolic tools (e.g., the appeal of national solidarity), to generate higher levels of compliance and cooperation from the society.

Even though the three core dimensions of state capacity are interrelated (Hanson & Sigman, 2021), higher coercive capacity does not lead to the usage of more diverse policy tools. Coercive power means mandating citizen compliance through forces, which can be mapped onto extensive usage of authority tools (sometimes with a combination of negative incentive tools). Since maintaining order is states' most fundamental function, when states are more constrained with their extractive and administrative capacity, their governments are more constrained by the types of policy tools they can employ. Incapable states are more likely to use the same policy tools, and often time authority tools, across many types of policy events to achieve the intended policy goals. As such, it is expected that

***H1** Higher state capacity leads to the usage of more diverse policy tools beyond authority tools within each type of policy events through higher levels of extractive and administrative capacity.*

Moreover, because state capacity also indicates the ability of a government to extract and reallocate resources within society, it is expected that such ability would influence the extent to which governments can or want to focus on policy event types that require more national resource mobilization in their COVID-19 response. A state high in extractive and administrative capacity can coordinate inter-agency works and mobilize more health resources for COVID-19 responses. In contrast, states with limited capacities in both dimensions may also have the willingness to develop health resources but are limited in their abilities to achieve their goals (Christensen & Lægheid, 2020). Therefore, it is expected that

***H2** States high in extractive and administrative capacity are associated with more policy event types that requires resource mobilization in their COVID-19 responses.*

Last, state capacity also matters when governments initiate their crisis response. Based on crisis management literature (Comfort, 2007), cognition—being cognizant with the issue severity—is essential for a government to take action to cope with the uncertain crisis. Without early cognition, a government cannot properly design and implement actions to cope with the upcoming risk. To detect and assess the crisis, high administrative capacity is necessary because information gathering needs a state's information capacity and inter-/intra-governmental cooperation. More-capable states with high administrative capacity can form their crisis response and take precautionary measures before the crisis escalates in order to design and implement effective crisis management policies. In contrast, less-capable states are more reactive than proactive. States with limited administrative ability are more likely to do nothing at the beginning of a crisis and remain inactive until the risk level is already high and the crisis is beyond control. Therefore, it is expected that

H3 High-capacity states are more proactive in crisis response. Low-capacity states are more reactive until the risk level is high.

In summary, this paper argues that states high in extractive and administrative capacity are more likely to proactively respond to COVID-19, focus on policy domains that require national resource mobilization, and employ a diverse range of policy tools in the chosen policy domains. On the other hand, low capacity leads to reactive response to the crisis, the use of limited policy tools, and reliance more on policy event types of a restrictive nature (e.g., school closure, limits on gatherings, or lockdowns) than on those of a capacity-building nature.

3 | CASE SELECTION AND DATA COLLECTION

3.1 | Case selection

Rather than conducting a global level quantitative analysis, we conducted an in-depth qualitative comparative study using the comparative case analysis method. The paper focuses on five East Asian countries and their COVID-19 responses in the early stages before March 12, 2020. First, the narrow focus on the early stage helps prevent the influence of isomorphism and policy diffusion. Because of their proximity to China, East Asian countries knew of the COVID-19 threat early on, and East Asian countries also documented the first COVID-19 confirmed cases outside China. Soon after the pandemic was declared, countries started to mimic policies initiated and adopted by other countries.³ Investigating government responses at the early stage eliminates most of the policy diffusion effect. In addition, according to existing emergency management studies, countries' risk cognition (Comfort, 2007) and early response determine the effectiveness of emergency management plans (Comfort, 2007; Kapucu, 2008). Scholars of public health emergencies also highlight early detection and response to an epidemic as pivotal for containing the spread (Siedner et al., 2015). The policy infrastructure set in the early stages is also essential to coping with potential outbreaks and uncertainty later on (Liu et al., 2021). Therefore, it is valuable to probe governments' early responses to COVID-19 rather than looking into their responses after the pandemic has been declared.

Secondly, cases are selected based on geographical proximity to China and state capacity levels. Using the state capacity measure proposed by Hanson and Sigman (2020, 2021), we selected Singapore, South Korea, and Taiwan as high-capacity states, and Thailand and Indonesia as low-capacity states. These selected countries were all veterans of the SARS epidemic in 2003. This similarity can reduce any history-induced confounding factors that would hamper the internal validity of the study. In addition, these countries are of various regime types, Singapore and Thailand being nondemocratic regimes, and the others operating under democratic forms. Since regime type can have independent effects on how governments respond to COVID-19, mixing different regime types across state capacity levels helps single out the real impacts of state capacity on policy design.

3.2 | Data collection

For a comprehensive list of government measures, we collected all COVID-19-related actions initiated by each of the five governments.⁴ Every author is familiar with the language and context

of the country(ies) the author is responsible for. These government responses were obtained from various online sources, including governmental websites, local country online outlets, and reports by local country research institutions, and were organized chronologically. We compared our data with the Oxford COVID-19 Government Response Tracker (OxCGRT)⁵ to ensure accuracy and reliability. This comparison allows us to find that some government measures that we found reported by local newspapers are not on the OxCGRT list. Specifically, the OxCGRT data did not document governments' responses to COVID-19 prior to January 1st, 2020. The data collected by the authors includes governments' actions before China officially informed WHO about the existence of the Novel Coronavirus on December 31, 2019. Because this study primarily focuses on governments' early responses to COVID-19, these early responses are particularly crucial. Moreover, the OxCGRT provides governments' responses (e.g., travel warning) without including detailed policy contents (e.g., whether the travel warning imposes travel restriction), which disadvantages our coding process. For example, South Korea and Taiwan both issued travel warnings, but the travel warning issued by the South Korean government included travel restrictions while the warning issued in Taiwan did not. Therefore, to ensure comprehensiveness of government responses and coding accuracy, instead of directly using the OxCGRT, we used the OxCGRT as a comparison to triangulate our own data.

For each case, we coded government responses as follows: First, we revised the 16 policy event types used by Cheng et al. (2020) and used the framework to classify policy event types the government focused on.⁶ Second, we used Schneider and Ingram's (1990) policy tool typologies to code every government response based on its underlying mechanisms and instruments. We coded public authority tools if the government response mechanism was based on governmental authority. Examples included, but were not limited to, mandatory quarantine, banning foreign passengers from entering, school shutdown, and closure of business. Although public authority tools are often combined with other motivating mechanisms to increase public compliance, some policies may not be announced with tangible payoff (Kelman, 1981). If a policy was not announced with explicit rewards or sanctions such as fines, we coded it as a pure public authority tool. We coded incentive tools as government actions directly utilizing inducements or sanctions as the underlying mechanism to shape citizens' behaviors. Examples include financial support for mandatory quarantine, investment for PPE production, and fines for quarantine violation. We coded government-initiated actions or collaboration across different agencies/departments/sectors aimed to "enable individuals, groups, or agencies to make decisions or carry out activities" as capacity tools (Schneider & Ingram, 1990, p. 517). Examples of capacity tools include government investment for private PPE production, public sanitation education, cross-sector collaboration, and public-private cooperation. Any government announcement or political leader's speech not directly related to a disease preventive action that aimed to increase trust in government, support for a policy, or encourage compliance was coded as a hortatory tool. Finally, we coded government actions aimed at learning more about the nature of COVID-19 or discovering solutions as learning tools. For instance, testing development and COVID-19 research/investigation were learning tools because these actions were initiated to understand the situation and the nature of COVID-19 at the initial stages of the pandemic.

To ensure inter-coder reliability, each author served as an independent coder and finished the coding by following the above-mentioned coding mechanisms. After the independent coding process, we compared and evaluated our code.⁷

4 | SPECTRUMS OF STATE CAPACITY AND COVID-19 RESPONSES IN ASIA

A comparative case analysis can yield useful analytical results as these cases occupy different points on the capacity spectrum, allowing us to tease out how state capacity shapes a country's response to the COVID-19 crisis. The analysis below yields two conclusions. First, state capacity affects how quickly governments reacted to the COVID-19 crisis and how many health resources governments mobilized. Since the coronavirus originated in China, the first essential action for all five of China's neighboring states was to keep the virus at bay. All states emphasized health monitoring at the border and in high-risk areas. Yet, closer examination of these cases shows that countries with different extractive and administrative capacity levels diverged in terms of when health monitoring began and whether government action stopped there. States high in extractive and administrative capacity were more proactive in their responses and in mobilizing and coordinating other health resources to curb the virus. Singapore, South Korea, and Taiwan proactively set up health screening within 3 days of China's notifying the WHO of the potential coronavirus. Besides health monitoring, all three concentrated on mobilizing other health resources to actively detect and stop the virus. Singapore chose to expand their contact tracing capacity; South Korea emphasized expanding test kits for mass testing; Taiwan focused on mobilizing PPE (especially masks) for virus prevention. The different health resources these three states focused on are the result of their preexisting infrastructure capacity (see Table 3).

In contrast, states limited with administrative capacity issued their responses later. Indonesia started health monitoring only at the end of January 2020, almost a month later than high-capacity states. Throughout February, Indonesia issued a few border-related regulations (e.g., travel warnings, travel bans, detaining migrant workers). There was no comprehensive plan or resource mobilization for curbing the virus. The government officials also did not sense the urgency of the crisis. Indonesia reactively escalated their response only in March, when the country experienced its first outbreak. Thailand also had a more limited capacity. Of all the cases, Thailand ranks the lowest with its overall capacity level and extractive capacity (Hanson & Sigman, 2020). Thailand was the first country outside China with a confirmed COVID-19 case. In contrast to Indonesia, however, Thailand demonstrated a quicker response once detecting the coronavirus and initiated health monitoring in early January. Nevertheless, despite early implementation of health monitoring, Thailand did not proactively mobilize other health resources comprehensively. Thailand did strengthen its laboratory diagnostic capacity in January and February. It also tried to expand its mass testing capacity but was not as successful due to its inability to mobilize enough laboratory resources at the national and local levels. Thailand's inadequate effort was apparent when compared to the testing expansion plan of South Korea, which ranks highest in overall state capacity and has higher extractive ability than Thailand. The diagnostic and testing capacity also proved inadequate as well when Thailand experienced its first outbreak in March 2020. Both Indonesia and Thailand mobilized the society more extensively after their first outbreaks.

Second, state capacity affects the extent to which governments can utilize a diverse set of policy tools. States higher in extractive and administrative capacity developed wider ranges of policy tools in the early stages. Regarding the same policy goal (e.g., health monitoring or mass testing), high-capacity states deploy more policy tools than do low-capacity states. Singapore, Taiwan, and South Korea all concentrated on a few policy event types in the beginning and combined various policy tools within each policy event type. On the other hand, states with limited administrative capacity responded to the crisis more reactively after the virus risk level was already high, they often immediately resorted to drastic measures, such as restrictive social

TABLE 3 Main policy Configuration before March 11, 2020

	Country	Date of the first confirmed case	Date of the 100th case	# of cases by March 11, 2021	Date of initial action	Main policy configuration before its first case		Main policy configuration after its first case to March 11, 2020	
						Main policy events	Main policy tools used	Main policy events	Main policy tools used
Higher capacity	Singapore	January 23, 2020	February 29, 2020	178	January 2, 2020	Health monitoring, health resources	Authority tool, capacity tool	Health resources, restricting Mass gathering, health monitoring	Authority tool, capacity tool
	South Korea	January 20, 2020	February 20, 2020	7755	January 3, 2020	Health monitoring, health resources	Capacity tool, learning tool, incentive tool, authority tool	Mass testing, health monitoring, social distancing	Incentive tool, authority tool, capacity tool
	Taiwan	January 21, 2020	March 18, 2020	48	December 31, 2019	Health monitoring, health resources	Authority tool, capacity tool, incentive tool	Health monitoring, health resources, quarantine	Authority tool, capacity tool, incentive tool, hortatory tool

TABLE 3 (Continued)

Country	Date of the first confirmed case	Date of the 100th case	# of cases by March 11, 2021	Date of initial action	Main policy configuration before its first case		Main policy configuration after its first case to March 11, 2020	
					Main policy events	Main policy tools used	Main policy events	Main policy tools used
Lower state capacity								
Thailand	January 13, 2020	March 15, 2020	59	January 3, 2020	Health monitoring	Authority tool	Health monitoring, health resources, declaration of emergency, internal border restriction, quarantine	Authority tool
Indonesia	March 2, 2020	March 15, 2020	34	January 27, 2020	Border control, health monitoring	Authority tool, capacity tool	Border control, health monitoring	Authority tool, capacity tool

Note: This table presents the main policy events and policy tools utilized by the five selected countries but does not represent an exhausted list of all policy events/tools that had been employed by the five selected countries.

distancing measures, which often means using many strong authority tools. Both Thailand and Indonesia immediately fell back to heavy reliance on authority tools when they experienced their first outbreaks in March 2020.

Below is the detailed analysis of each case. We start with a quick overview of the case prior to March 2020, followed by elaborations on policy event types and policy tools used in each case. We end each case with a brief discussion of developments after March 2020.

4.1 | High state-capacity cases: Proactive responses and comprehensive policy tools

Singapore: As a veteran SARS country, Singapore quickly activated its response system on January 2. The first coronavirus case happened January 23, to which the government escalated restrictive measures in response. Despite the effort, the first local cluster appeared on February 4. Singapore had 100 cases on February 29 and 178 cases by March 11.

Singapore developed its precautionary measures even before the first confirmed case and along two main types of policy events: border health monitoring and health resources (i.e., contact tracing). Singapore's crisis management logic was to isolate and suppress any potential cases, and such logic was reflected in the measures it took. First, health monitoring focused on filtering incoming travelers from China (which later was expanded to people with travel history tied to China) through temperature screening at the border to single out potential cases. Second, in the early stages, Singapore focused on establishing the contact tracing system to further identify all potential cases.⁸ At the beginning, the government relied on personnel from the Ministry of Health for contact tracing. The system was soon expanded to include the Singapore Police Force and the army. All suspected or high-risk cases, identified through health monitoring or contact tracing, were put in precautionary quarantine. In summary, Singapore relied upon active health monitoring and extensive contact tracing as the main crisis management strategies.

Within each type of policy event, the government relied heavily on the combination of authority tool and capacity tool. The authority tool was the default policy tool used everywhere. Singapore rarely combined authority tools with incentive tools (either positive or negative), which was what other democratic government cases would do. Instead, issuing top-down authoritative instruction with the expectation that citizens would comply was the common tone across all official documents. In only a few places were authority tools combined with clear negative incentive tools. Besides authority tools, the policy tool used most often was the capacity tool that guided citizens to take the desired actions through education and resource provision. Examples include the expansion of health checkpoints and contact tracing teams, etc. Within each focused policy event type, the government ensured that resources were provided to support bureaucratic agencies and citizen self-preparation.

As infectious cases rose, Singapore rolled out more measures. Building upon the initial policy focus, the government continued to expand surge capacity at health facilities. Singapore worked on expanding its capacity (i.e., building a joint working group with Malaysia), mobilizing more health resources (i.e., setting up more temperature checking points, ramping up domestic mask productions, turning nonmedical facilities into quarantine housing facilities), and restricting mass gatherings. The country showed its strong capacity in mobilizing and building upon existing health resources, for instance, by continuing the contact tracing effort and building a mobile app (i.e., TraceTogether) to expand contact tracing capacity. Comprehensive health resource

infrastructure made Singapore resilient and able to recover more quickly from outbreaks in the later stages of the pandemic.

South Korea: South Korea was proactive in its COVID-19 response. On January 3, 2020, Korea's Center for Disease Control and Prevention (KCDC) had already established a Wuhan pneumonia task force, set up health monitoring systems in the airports, and issued reporting criteria guidelines. The first confirmed case happened almost 2 weeks later, on January 20. The first outbreak in South Korea happened in late February, the result of religious gatherings in Daegu. The country experienced its first big spike of COVID-19 cases between then and March 11, when South Korea documented 7755 COVID-19 cases.

In the early stages, South Korea put heavy emphasis on mass testing and health monitoring at the border. The goal was to detect and treat all suspected cases. The government partnered with private companies to expand mass testing capacity. First, KCDC developed its own test and disclosed the information to selected biotech companies in a closed meeting in late January 2020. Second, the government provided institutional support (i.e., emergency use authorization; EUA) for fast track approval of test kits. On February 4, 2020, KogeneBiotech became the first company to obtain EUA and produce testing kits, followed by four other biotech companies. The government also waived testing fees for suspected cases or those in recent contact with confirmed cases to enhance citizen compliance. On health monitoring, South Korea implemented only a partial entry ban to those who visited Hubei on Feb 4. Instead, the government relied on strict border checks. All incoming passengers were tested for COVID-19 (testing fees covered by the government). Besides testing and health monitoring, the government held press briefings twice a day after its first confirmed case on January 20. The goal was to increase public awareness and set behavior expectations for its citizens, which was proven to be effective at increasing citizen compliance.

Within each type of policy event, South Korea mainly utilized capacity-building, incentive tools, public authority, and learning tools. The government tilted more heavily toward capacity building and learning tools before the Daegu outbreak and strengthened the use of public authorities more frequently after the outbreak happened. After the Daegu outbreak, the government continued to expand mass testing capacity for the private sector (capacity tool). At the same time, the government began to rely on authority tools and negative incentive tools to mandate suspected patients. Citizens who refused to take a test or violated self-quarantine ordered by the health authorities faced up to a 3 million won (\$2470) fine. A similar combination of policy tools can be observed with the health monitoring policy. South Korea used mainly public authority and negative incentive tools (i.e., monetary fines) when imposing travel restrictions. As the numbers surged, South Korea expanded its monitoring capabilities through inter- and intra-governmental cooperation and government-private sector collaboration.

To sum up, confronted with a more severe COVID-19 risk, South Korea reacted by employing more policy tools within the type of policy events they had already chosen. Despite its largest number of infections outside China before March, South Korea has managed to flatten the curve since then. Based on existing massive testing, health authorities implemented intensive social-distancing restrictions, including closure of schools and public entertainment venues, targeted suspension of public gatherings, and contact tracing through mobile technology and expanded mandatory quarantine of all travelers from abroad. Although a second wave emerged in August, increased testing and contact tracing enabled the country to reduce new daily cases quickly with low fatality rates.

Taiwan: Because of its SARS experience, Taiwan is cautious when coping with any possible epidemic emergency. Before the WHO was notified of the unknown novel coronavirus spreading

in China, Taiwan had already started its response to the uncertain disease and implemented onboard screening for all incoming travelers from Wuhan, China on December 31, 2019. Moreover, the Taiwanese government activated its Central Epidemic Control Center (CECC), raised public awareness about the virus, and secured medical supplies even before its first confirmed case on January 21, 2020.

Taiwan's initial response focused on three types of policy events: health resources (i.e., masks), health monitoring, and quarantine. On health resources, Taiwan banned the export of surgical masks, implemented a name-based mask rationing system, and then increased production of masks. On health monitoring, besides onboard screening begun December 2019, the government enhanced monitoring of incoming passengers' health condition by linking their travel history to the National Health Insurance database, helping doctors flag suspected cases more easily. On quarantine, Taiwan imposed mandatory 14-day home-quarantine for passengers arriving from the outbreak area. The mandatory quarantine was limited first to travelers from Hubei province (Wuhan area), but within days the mandate was expanded to travelers from Hong Kong and Macau, and eventually covered all travelers from China on February 6. Similar to South Korea, Taiwan started daily press conferences on January 23, 2020.

Within each type of policy event, Taiwan often combined authority, incentive, and capacity tools. First, the government issued a clear regulation (the authority tool) about masks with monetary fines (negative incentive tools) to stop mask export. To facilitate the name-based mask rationing system, the government collaborated with civil society (especially civic hackers) and built digital mask maps for easier distribution (capacity tool). Taiwan's quarantine policy mixed positive incentive tools (i.e., financial compensation for the quarantined), capacity tools (i.e., quarantine hotel assistance funds and collaboration with the telecommunications companies to monitor the quarantined), and negative incentive tools (i.e., hefty fines for violators) to increase citizen compliance. Multiple policy tools often achieved one policy goal. The hortatory tool was used extensively in Taiwan. The CECC used much rhetoric about solidarity and society's collective sense of responsibility in daily conferences to mobilize and strengthen citizen compliance of regulations.

Due to Taiwan's early efforts, when the pandemic was declared on March 11, Taiwan had accumulated only 49 cases. Despite the rising risk worldwide, there was no local outbreak, so no need for any significant changes in coping with COVID-19. The state continued to ramp up more health resources and expanded mandatory quarantine of more travelers from high-risk areas. As a result, Taiwan was free from local transmissions from April to December 2020.

4.2 | Low state capacity cases: Reactive responses and restricted policy tools

Thailand: Thailand was the first country outside China with confirmed COVID-19 cases (first case detected on January 8, 2020, and confirmed on January 13). Though Thailand detected its first case very early, cases increased slowly throughout January and February. Thailand's first major outbreak emerged a week before March 11. An indoor Thai boxing match and a night club gathering in Bangkok eventually caused more than 100 cases. Therefore, although there were 59 cases on March 11, 2020, the accumulated confirmed cases reached over 1800 by the end of March.

No significant and aggressive public health intervention was found before the first domestic outbreak. In the early stages, one visible focus was active health monitoring at the airport,

tourist attractions, and hospitals. Another less noticeable early effort was the development of in-house laboratory diagnostic capacity (for RT-PCR tests) in January. Thailand has a relatively robust health infrastructure in Southeast Asia (excluding Singapore). With this existing capacity, once the WHO publicly shared the protocol for building diagnostic testing, Thailand developed its laboratory diagnostic capacity, contributing to early detection of cases. Despite the efforts in expanding testing and diagnostic capacity, the plan was not successful due to Thailand's inability to mobilize enough laboratory resources at the national and local levels. Thailand still encountered a shortage of testing kits and laboratory capacity for RT-PCR tests nationwide during its first outbreak.⁹

Thailand drastically changed its course of crisis response on March 11, setting up the Center for COVID-19 Situation Administration (CCSA), chaired by the prime minister, as the single command center for COVID-19 response. Responding to the rising risk, Thailand introduced a series of coercive policies, using such authority tools as restriction of movement between provinces, declaration of emergency, curfew, and mandatory state quarantine. Given the urgency of the situation, Thailand relied on intensive authority tools to curb the outbreak. During the same period, the military-backed executive power also was centralized through a series of coercive measures. Thailand has been praised for the public health measures it took in curbing COVID-19, but most effective measures were taken or implemented after the first outbreak had started.

Indonesia: Indonesia's initial response to COVID-19 was not as active as the other four countries analyzed in this paper. It was reactive after the first confirmed case on March 2, prior to which the government did not do much. By March 11, there were 34 confirmed cases. Indonesia only formed its task force fast-response team on March 13 after COVID-19 was declared pandemic in an effort to coordinate inter-agency mitigation of the impact of Covid-19. On the same day, the WHO sent a letter to Indonesia's president urging him to increase the country's emergency response.

Between January and March 2020, Indonesia did not have any comprehensive plan for curbing the virus. Indonesia issued its first public measure on January 27, 2020, and the government focused mostly on measures related to the border, including border control and health monitoring. In late January, the government issued a travel warning on China (which later became a travel ban). Indonesia also started checking arriving passengers' body temperatures. In February, the government temporarily stopped flights to and from China and stopped sending migrant workers to China.

Domestically, the government was more concerned about the economy than about public health. Some government officials were in denial of the crisis and disregarded all the unreported cases in the early days. Instead of mobilizing health resources, the government focused on boosting tourism in late February, including an allocation of IDR 72 billion (US\$5.2 million) to pay social media influencers for tourism promotions. Overall, the logic behind Indonesia's early response shows that the government cared more about livelihood than lives.

Indonesia used many public authority tools in fighting the virus in the early stages. Halting flights from and to China and the travel of migrant workers is an example of an authority tool. Yet, there were no clear negative incentives (i.e., penalties) associated with authority tools. After the first case was reported in early March, the government tried implementing a number of capacity-building tools, including protocols for border monitoring, public space and transportation, and educational institutions. The effect was quite limited as citizen compliance was low.

The overall capacity was also limited, making Indonesia unprepared for the outbreak. First, there was limited testing capacity. The Covid-19 testing rate was the lowest among countries with the highest infection numbers. So the first case was not confirmed until March. Second, the

medical resources were inadequate to tackle the surge capacity: only four doctors, 12 hospital beds, and fewer than three intensive care beds per 100,000 (Mahendradhata et al., 2017).

Therefore, even though Indonesia tried to roll out mass testing and used other capacity-building tools, the measures were futile. With the immediate rising COVID-19 risks, Indonesia fell back on authority tools. The national government implemented large-scale social restrictions in provinces and cities across the archipelago. The Ministry of Health granted permission to regional governments to impose movement restriction. A national public health emergency was declared on March 31, 2020.

5 | DISCUSSION AND CONCLUSION

The COVID-19 pandemic has exposed the good and the bad of government performance. A country's COVID-19 response is constrained by its preexisting political institutions. What accounts for government response variation to COVID-19? This paper focuses on the role of state capacity, a country's fundamental ability to organize its bureaucracy to extract and reallocate societal resources through public policies to achieve the intended policy outcomes. We focus on how state capacity plays a role in shaping five Asian countries' policy response in the early stages of the COVID-19 crisis. One distinctive feature of the early days of the COVID-19 crisis is the immense level of uncertainty. With less information but higher uncertainty at the time, China's neighboring countries had to organize a response based on their perceptions of the crisis.

We assert that state capacity affects the timing of crisis response, the extent to which governments focus on types of policy events demanding national resource mobilization, and the diversity of policy tools used within the chosen policy event types. Governments with high capacity are more likely to proactively respond to COVID-19, mobilize and coordinate national resources in their policy responses, and employ a diverse range of policy tools in the chosen policy event types. On the other hand, low capacity leads to reactive responses, use of limited policy tools (and heavy reliance on authority tools), and more on policy event types that are restrictive rather than further capacity building in nature. The paper traces the policy responses of five states that differ in their capacity levels; Singapore, South Korea, and Taiwan on the higher end and Indonesia and Thailand on the lower end. We also find that early policy design infrastructure locks the country into a specific response path as COVID-19 risks increase. More-capable states continue expanding upon the already comprehensive policy configuration and add more types of policy events. Less-capable states will also expand their policy event types, but they use the same tools repeatedly.

This paper helps bridge the gap between the state capacity literature and the policy design literature. Existing scholarship highlights how state capacity is critical in achieving desirable policy outcomes, yet most studies examine the source and strength of state capacity through the lens of policy implementation and policy outcomes (Besley & Persson, 2009; Geddes, 1994). The study of policy process, in particular policy design, is mostly dominated by policy scholars (Howlett et al., 2015). This paper joins recent efforts in shifting the analysis focus of state capacity from the implementation stage to the policy design stage (Meckling & Nahm, 2018), especially in the context of crisis management (Mao, 2021). By unpacking the endogenous linkage from state capacity to policy design, this paper points out the importance of state capacity in the policy process.

Even though countries analyzed in this paper vary in terms of their capacity levels, *state capacity* is a relative term. In our analysis, Thailand and Indonesia are on the lower end of the

state capacity spectrum. However, Thailand and Indonesia are both viewed as more capable when compared to other less-capable or failed states. In comparison, the policy design configuration and trajectory of Thailand and Indonesia show similarity and demonstrate significant differences from Singapore, Taiwan, and South Korea. Yet Thailand and Indonesia might still be quicker than other countries with even lower capacity.

Moreover, this paper does not argue that state capacity explains the full range of governments' crisis response during COVID-19. Nor does it try to argue that state capacity, as a single factor, accounts for countries' COVID-19 success or failure. COVID-19 case/death counts can be a function of state capacity, governance, and transparency levels, among other factors. This study enhances our understanding of how state capacity directly affects the speed and content of policy responses during a public health crisis. One future direction is to expand the analysis to cover a longer period and trace the policy response trajectory within a country to test how state capacity contributes to a country's overall resilience level against COVID-19.

ACKNOWLEDGMENTS

This research is not funded.

CONFLICT OF INTEREST

The authors declare we have no conflict of interest.

DATA AVAILABILITY STATEMENT

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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ENDNOTES

- ¹ For example, Singapore, as a high-capacity state, was very successful in its initial response. Yet, the city-state had a sudden outbreak among migrant workers. The outbreak was the consequence of a weak civil society, leaving migrant workers as unprotected loopholes in the system (Yuen et al., 2021).
- ² For instance, a state's extractive capacity is often measured by tax revenues, leaving out any discussion about how revenues are collected (Lieberman, 2002.). Nevertheless, there are various routes to collecting more revenue from citizens: The government can impose fail-to-file penalties to enhance tax compliance, or the government can offer tax credits or discounts to encourage early payment. These measures are intentional yet different policy designs to improve citizen tax compliance.
- ³ For example, on March 15, both New Zealand's Director General of Health Ashley Bloomfield and Israeli Prime Minister Benjamin Netanyahu announced in their press conferences the adoption of Taiwan's approach to containing the spreading of COVID-19.
- ⁴ Thailand and South Korea are coded by the same author.
- ⁵ The Oxford Covid-19 Government Response Tracker (OxCGRT) compiles systematic data on policy responses taken by countries to combat COVID-19. Since 1 January 2020, OxCGRT has tracked the various policy responses covering over 180 nations and categorized them into 23 indicators, such as school closures, travel restrictions, and vaccination policies. These policies are scored on a scale to represent the magnitude of government intervention, and the results are compiled into a set of policy indices. See <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>.

- ⁶ The original 16 policy event types were closure of schools, curfew, declaration of emergency, external border restrictions, health monitoring, health resources, health testing, internal border restriction, new tasks force/bureau/administrative configuration, public awareness measures, quarantine/lockdown, restriction of nonessential businesses, restriction of nonessential government services, restrictions of mass gatherings, social distancing, and other. We further broke down quarantine and lockdown into two dimensions because most of our selected countries did not issue mass lockdowns during the timeframe of the study. Moreover, we added public mask-wearing as another additional policy event type. Each of these policy events/categories is considered one type of policy event.
- ⁷ Specifically, to ensure the accuracy of coding, all authors communicated about and standardized the coding mechanisms before the first round of coding. After the primary coder (the author who was responsible for collecting the country's government responses were the primary coder of the country) had finished the coding, the second coder (randomly assigned) started the coding without seeing the primary coder's coding. Because of the communication before coding, there were only a few discrepancies between the two coders. When there were discrepancies, the third coder was employed to decide the final coding.
- ⁸ On health resources, one advantage Singapore had was a new National Centre for Infectious Diseases built in September the year before. The center added 330 beds to treat COVID-19 cases, preparing Singapore's health facilities to cope with surge capacity.
- ⁹ The presence of Village Health Volunteers in Thailand was cited as leading to higher public awareness of the virus, but their role became more important starting in March.

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How to cite this article: Yen, W.-T., Liu, L.-Y., Won, E., & Testriono. (2022). The imperative of state capacity in public health crisis: Asia's early COVID-19 policy responses. *Governance*, 1–22. <https://doi.org/10.1111/gove.12695>